



COLORADO/WYOMING NEWSLETTER



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Lycoming's Revised Guidance on Mag Checks

Some of us already know this and have been practicing it for some time. Your editor leans the engine immediately after starting it at our field altitude of 5500 feet.

On June 18, 2010, Lycoming issued Service Instruction No. 1132B, revising its guidance on how preflight mag checks should be performed. Some highlights of this new service bulletin:

- Engines with fixed-pitch props (most of us) should conduct the mag check at approximately 1800 rpm (2000 rpm maximum).
- Maximum allowable mag drop is 175 rpm for each magneto, and 50-rpm difference between magnetos.
- If mag drop exceeds 175 rpm, lean the engine to peak rpm and then repeat the mag check at the newly leaned mixture.

Replacement for 100LL

We've been reading about the upcoming demise of 100LL leaded avgas for (many) years now. All sorts of ideas have surfaced and many fuel types/combinations have been tested. Most or all of the things I've read about it show that those who are engaged in this effort seem to be looking for a "one size fits all" fuel: i.e. one that will run in any gasoline powered engine now being flown.

Seems to me that there's an off the shelf fuel that will meet the requirements of the majority of the general aviation engines now used: good old unleaded auto fuel without ethanol (alcohol). This fuel, available at octanes up to 91 octane, has been shown to be compatible with our engines (though some argue about the long term effects of unleaded fuel), as shown by the STCs available that allow us to burn unleaded auto gas.

So, what's wrong with two gas pumps at an airport, with one serving unleaded auto gas to the majority of airplanes now flying and the other serving whatever replaces the higher octane needs now served by 100LL? Yes, the FBOs would prefer a single pump/tank, especially at the low levels of gasoline sales at some airports. But, this is nothing new. Remember the two types of leaded aviation gasoline we used to find?

Oh, is there a downside to this idea? Well, certainly, or we'd have done it already. In addition to finding an alternate fuel at a reasonable price (assuming that the word reasonable applies to aviation), here're a couple of thoughts.

First, we do away with the majority of the 100LL by substituting auto gas. The company in England that makes tetra-ethyl lead (maybe) finds it no longer profitable and shuts down production. That (might) ground our high

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Meeting: September 2012

Next Southwest Regional will be in Denver, probably centered at Centennial Airport. Here's an opportunity for you to meet a wonderful group of people and have a lot of fun.



performance engines/aircraft such as many of our warbirds, to name only one category.

Second, we open or re-open a whole new realm of opportunity for those of us who like to sue people. Americans are the best in the world at some things, and are particularly best at suing each other and corporations. I suspect the reason that auto fuel isn't currently carried at airfields around the country is related to liability. It's called, "You bet your company" if you get sued for selling certain products.

Bet there are other downsides, but if you've read this far, you deserve a break. Thanks.

Oil

I find things that sound right and excerpt/borrow/steal them for this newsletter. I have to admit that I don't further research them to be sure that they're right, assuming that I even know enough to figure out if they're right. I look for things written in EAA's Sport Aviation, or AOPA's Pilot magazine, or some source I think credible. I don't generally take things off the internet unless I know the source. And, as an aside, I believe about 20% (maybe) of what's forwarded to me in emails. Follow the money or the political motive for these.

*Off the soap box...Here're some things you either know about oil or, like me, have missed; or worse, forgotten. This one from Sport Aviation.
- ED.*

Oil Consumption

Lots of factors effect oil consumption. Big displacement engines use more oil that small displacement engines. Sounds obvious. Chrome plated cylinders use more oil than steel cylinders. Nickel-carbide cylinders use less oil than steel cylinders.

Anything from one quart in 20 hours to a quart in four hours is normal. Some engines burn a quart in four hours and make it to TBO with no problems. Others use hardly any oil and need a top overhaul in 500 hours.

If an engine has been burning a quart in 12 hours and suddenly starts burning a quart in 6 hours, we should be concerned. Sudden changes are verboten in most things in life and particularly in engines.

Be concerned if the oil starts to turn black and opaque quickly after an oil change, say within 10 hours of so. This indicates excessive blow-by and should lead you to scratch your head and trouble shoot to see why this is happening.

Dipstick Level

The author that I stole this story from says that, if we have an 8 quart engine (and most of us do), that they run just fine on 5 or 6 quarts and will often toss the other 2 or 3 quarts out...something we didn't already know? I never put more than 6 quarts in my O-320 Lycoming at an oil change.

Oil Change Interval

Because piston aircraft engines get oil so filthy, never go beyond 50 hours between oil changes. And, change the filter at the same time. If you have only an oil screen, don't go beyond 25 hours between oil changes. Again, this is something we already knew, but the right idea, just the same.

Oil Filter Inspection

Cut open the oil filter at each oil change and check it for metal. A few flecks of metal aren't unusual. Don't sweat a few, especially if they're aluminum, copper, or bronze. You're primarily looking for steel. If you find ferrous whiskers, as opposed to flakes, they're typically from a failing lifter or cam lobe. If you can't figure where the metal's coming from, send the oil to a lab. The results can lead to the culprit.

Oil Analysis

Having your oil analyzed after every oil change will give you a long term trend on your engine's condition. I (almost) always have the oil analyzed, and will next time for sure after the long downtime on the engine during the airplane restoration.

Building a Dam

Dams hold back water. Here's a thought that's sorta' the same...ED.

You put in a new headliner and are justifiably proud of it. You installed the top fairings between the wings and fuselage on. Then you go fly your airplane...and it rains. That's ok, it always rains somewhere. Howsomeever, your new headliner gets stained. So sad...

I recently installed a new headliner in Headwinds, and have added some insurance above the space between the wing and fuselage. I have to admit that the wing root area can be pretty well sealed against leaks. But, in true "belt and suspenders" fashion:

I built a "dam".

The idea is to have the rain water slide aft and down from the wing/fuselage junction without leaking into the fuselage. If you really and truly sealed your fuselage, don't waste your time. Skip on down. Howsomeever, I'd bet that your aileron and flap cables aren't completely sealed. I used Stewart Systems products, but any other system will work.

First, scuff the paint on the edge of the fuselage and the edge of the wing with 320 (or thereabouts) grit sandpaper. The idea is to give the glue something to grab. Only sand about 1/2 inch (about a cm) so that the top fairing covers the sanded and glued area when you're finished.

Cut a piece of ceconite that will bridge the gap between the wing and fuselage. Mine was 4.5 inches wide (11.4 cm, give or take). The length of the ceconite should go from just around and below the leading edge of the wing to just forward of the flap, assuming that you have a Tripacer. For other models, just be sure that the ceconite "dam" is above any hole that could leak water into the fuselage.

Glue the ceconite down and let it dry. Heat it with an iron to lock it down, if that's appropriate for the system you're using.

Shrink the ceconite with an iron and apply a fabric filler/UV block to make it waterproof. Leaving it a little "baggy" wouldn't hurt since the wing to fuselage joints will flex a little. It'll only show when you remove the top aluminum fairings: hopefully never. You can paint it if you want to, but two coats of UV primer/silver will make it waterproof.

Gluing is complete. A 250 degree F (121 degrees C) iron will lock the fabric in place. (Other systems lock the fabric down differently.) Ekofill (or the fabric filler/UV block of other systems) on the ceconite will finish the job. The "dam" can be painted to finish the job, but painting isn't necessary, since nothing will show unless you're sloppy.



Here's the start of the "dam", a strip of ceconite between the wing and fuselage. The ceconite is glued to the wing and fuselage edges. When finished, the fabric should channel any rain that leaks under the metal fairing away from the sides, where it could leak into the fuselage.



Our 2012 International SWPC Convention

2012 will see us in Ogden, Utah. What a wonderful venue!

Ogden is near the first site(s) colonized during the Mormon migration of the 1840s and beyond. Salt Lake City, the Mormon center, isn't far away, with its rich history.

Howsomever, this convention isn't about the Mormon migration, although it should be a very interesting addition for many of us. Ogden is also a place where we can land and taxi directly to the hotel. Sure makes the waiting for transportation and the jobs of those of us who drive the vans a whole lot easier.

We'll have an aircraft museum on the field, a poker run around the Salt Lake basin, and a visit to Promontory Point, almost where the transcontinental railroad met in 1868.

As an aside, the railroad from the west largely used Chinese laborers. The line from the east largely used Irish laborers. According to things I've read, the Chinese blasted, dug, built bridges and laid track faster than the Irish...but not much faster. In true capitalist tradition, the two lines kept going and built past each other rather than joining. After all, the railroad barons received land in return for track. Somebody realized what was going on and made them back up and join the rails at or near Promontory Point. I've heard that there's even a re-enactment of the joining ceremony that we may get to see. I'm sure that you remember the classic picture of the two locomotives nose to nose at the joining ceremony.

We'll have our usual camaraderie, with lots of time to visit. We'll have seminars related to Shortwing operation, maintenance, and flying. We'll have lots of good food. In short, we'll have our always good time. Plan to attend.

Contact John and Linda Parish, linanjon@comcast.net or call them at 801-731-8764 to volunteer to help. There's a wide variety of tasks and you can pick and choose among those that aren't already staffed. Volunteers have a great time and are the reason that our conventions work so well. The jobs are broken up into bite-sized pieces so that nobody has to work too hard or spend too much of his/her convention time doing them.



Did You Know?

2,000 gallons of water will get a steam locomotive approximately 15 to 30 miles. They stop and fill up to get the next 15 to 30 miles.

Paperwork

This from Jim Fix who, as you likely know, has been repairing propellers for MANY years now. - ED.

Greetings,

This is to let you all know that I now can finally LEGALLY fix a prop after Janice jumped through all kinds of FAA bureaucratic hoops for me. I would have just gotten pissed off and told them to go to hell so she handled it for me. My 70 page FAA, one man approved propeller repair manual, has finally been accepted so now I can put it in the drawer and go about my business. Just to show how really stupid all this is, I once had to write a letter to the FAA recommending myself for a propeller repairman rating listing all of my qualifications, experience, and knowledge of how to use all of the equipment that I built or had built to my specifications for their approval. I also belong to a drug consortium but I don't need it to repair props. However some of my customers that do charter work must have their work done by a drug free shop. Can you believe that I randomly have to select myself for a surprise drug test? It is also required that I keep this file under lock and key from myself!!

I also wear all kinds of hats around here as I'm the chief inspector, owner, general manager, janitor, etc. I finally had to put my foot down on the manual. There was a section that said that the general manager would check and tag all of the precision equipment and the chief inspector would fill out a form annually and put it in the repair manual. That means I would have to inspect and tag the equipment and then I would have to fill out a form and put it in the manual for my FAA inspector who knows nothing, to check. I flatly said no as it was doing double duty for me and just another thing I would forget to do. They finally agreed to drop that part. As I say, "Ray Charles is driving the bus", they have the right to open or close my doors but not one of them could do my job. It's no wonder that our country is broke, the leeches finally have enough authority and are keeping the rest of us from actually being productive.

Jim

Another Note on 100LL gasoline

I still think that auto gas is a good alternative for 100LL for much of our fleet. Howsomeever, here's an airworthiness bulletin from FAA about a fuel blend that might lower the lead content of 100LL. - ED.

Special Airworthiness Information Bulletin

SUBJ: Grade 100VLL Aviation Gasoline

SAIB: NE-11-55

Date: September 14, 2011

"Grade 100VLL aviation gasoline (avgas) was developed by ASTM International to provide a lower lead alternative to 100LL in response to impending environmental regulations. Grade 100VLL is identical to 100LL in all aspects, except that the maximum lead content is reduced by about 19%. The specification criteria for lead content is expressed as only a maximum value, because avgas producers routinely tradeoff lead content with other fuel compositional changes to meet the specification criteria for Motor Octane Number (MON). FAA survey data has shown that the lead content can vary by up to 39% from the maximum lead value listed in the specification while still meeting the MON minimum requirement. Consequently, and most importantly, grade 100VLL has the same minimum octane rating and will provide the same level of anti-knock performance as 100LL and 100 avgas grades."

The article didn't state when the 100VLL fuel will be available for us to use or how much it might cost.

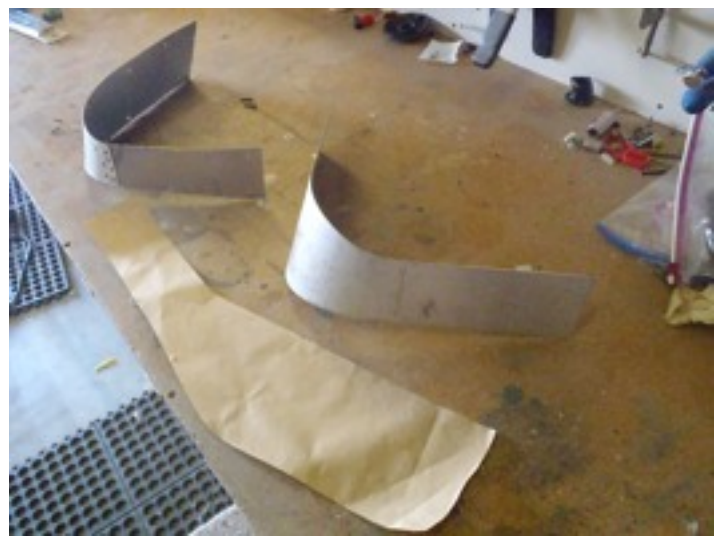
Building the Fairing Between the Windscreen and the Wing

I installed a new windshield. It didn't fit exactly as the previous windshield did, so the fairing on the port side didn't quite fit either. My friend, Jim Edwards, who flew in to help me finish the airplane and sign it off, made a temporary fairing. He had flown in at his own expense and, although we worked steadily for many days, came up against a time stop: hence the temporary fairing.

He installed the fairing (among other things) and test flew the airplane. He signed it off as airworthy, which it was/is, and flew back to Alaska.

I flew the airplane several times, but had to stay at the airport, since my transponder wasn't connected (another story). I decided to pull the fairings off the top of the airplane and build a new wing root fairing.

Using Jim's temporary fairing, I made a paper pattern and traced it onto a piece of aluminum. I cut out a new fairing, then ran it through the rollers on my shear/bender/roller. The pictures tell the story.



The temporary fairing is at the top left. I made a paper pattern, transferred it to a piece of aluminum, and cut/filed a new fairing. I etched the new part, cleaned it, primed it, painted it, and it's now ready to go on the airplane. If I don't screw up, it'll fly soon.

I bent the piece into the approximate shape using my Asian special cutter/bender/roller tool, below.

